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ABSTRACT

The study evaluated the effects of an auditory monitoring and feedback approach on an adolescent boy's schizophrenic language patterns. The approach attempted to increase the subject's auditory awareness and to train him to identify and correct the linguistic errors of others and, eventually, of himself. Language samples were analyzed at baseline and at four probe points during the treatment. Treatment consisted of individual sessions five times per week over a 5-month period. Sessions incorporated the following emphases: creation of an appropriate listening set, general error sensitivity, and both intra- and interpersonal scanning for errors. Five areas of interaction were targeted for improvement: number of questions, inappropriate questions, inappropriate topic shifts, rote statements, and perseverative statements. Findings indicated improvement in all areas of spontaneous interaction at each probe, with the exception of the final probe; here perseverative statements rose slightly. Greatest decreases occurred in percentages of inappropriate questions and perseverative statements. Findings confirmed the theory that children with schizophrenic language patterns lack the ability to monitor auditorily their own output. (CL)

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"CAN YOU TOUCH YOUR IMAGINATION?" A CASE STUDY OF SCHIZOPHRENESE

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Introduction

Children who exhibit schizophrenic language patterns are believed to be deficient in their ability to auditorily monitor the environment and themselves. Their auditory channels are not adequately opened to verbal and non-verbal communicative cues from others. They are also unaware of their own thought processes and verbal output (Yudkovitz & Rottersman, 1973). Therefore, their language patterns include rapid topic shifts and unrelated and bizarre utterances contained in syntactically correct forms.

Schizophrenic language has been further described by Rutter (1985) as "harder to follow than normal, and is characterized by poor reference networks and inappropriate use of questions." Other characteristics of schizophrenese include a failure to verbally connect thoughts and to include referents for phrases which require them (Allen & Allen, 1985). Consequently, children who exhibit schizophrenic language patterns are largely uncommunicative to the listener, resulting in a severe communication breakdown.

PURPOSE

The purpose of this study was to evaluate the effects of an adaptation of Yudkovitz and Rottersman's (1973) auditory monitoring and feedback approach on one adolescent boy's schizophrenic language patterns. The goal was to increase the subject's auditory awareness in an effort to train him to identify and correct the linguistic errors of others, and eventually of himself. Among the specific parameters evaluated were the subject's chronic production of un-related and/or bizarre utterances, and the occurrences of rapid topic shifts.

SUBJECT

"Marty", a 14 year, 11 month old male, was enrolled in a residential facility for autistic and autistic-like children and adolescents. Unclear and conflicting reports regarding age of onset and the occurrence of developmental milestones made a differential diagnosis between autism and childhood schizophrenia extremely difficult. However, certain aspects of his linguistic patterns were typical of schizophrenic children. He posed non-sensical questions and was insistent upon answers, (eg., "Oh Laura, do you need optic nerves to get into heaven?"). He exhibited the absence of topic establishment, inappropriate transitions, and lack of topic closure. He demonstrated one inconsistent token topic introduction, ("Oh Laura, please may I talk to you about..."), and he shifted topics rapidly, often in mid-utterance. His language was further characterized by a large number of perseverative topics (eg., colors, the number zero, God, opposites), and rote responses to social questions (eg., "I did fun things.").

Two speech-language pathologists from another psychiatric facility serving schizophrenic children observed Marty. The consensus of the consultants and the authors, and a review of the literature regarding schizophrenia led to the determination that the subject's linguistic patterns were classically characteristic of "schizophrenese." (See Appendix A for sample of the subject's lingustic patterns).

PROCEDURES

Marty was seen individually for one to two 30-minute sessions five days per week. Baseline data was obtained during the first 12 sessions. For each session, the subject's spontaneous interactions with the clinician were recorded and transcribed into 30-90 utterance language samples. The samples were then analyzed for predominant aberrant linguistic patterns. The following five patterns were most characteristic of Marty's language, and were therefore chosen as parameters for this study:

1. % total questions/total utterances
2. % inappropriate questions/total questions
3. # inappropriate topic shifts/half hour session
4. % rote statements/total statements
5. % perseverative statements/total statements

The series of treatment phases used were from those described by Yudkovitz & Rottersman (1973). In their study, a criterion for success and progression to subsequent phases was not specified. Therefore, a criterion for this study was randomly established at 80% accuracy for 3 consecutive sessions. The phases of the program, a brief description of each, and the comparisons to Yudkovitz & Rottersman's study are listed below.

I. Creation of An Appropriate Listening Set
-- The subject auditorily discriminated between minimal pairs, (eg., "tan/can"). An auditory trainer was used to enhance auditory awareness.
Modifications: 1. Omission of Yudkovitz & Rottersman's "identification of environmental sounds". (Rationale: Environmental sounds are processed differently than speech). 2. Omission of "Following 2-3 step directions". (Rationale: This skill was well-established by the subject previous to program).
Sessions: 3 (Yudkovitz & Rottersman: 35 sessions)

II. General Error Sensitivity
-- The subject listened to paragraphs read correctly, then containing word substitutions. Identification of the presence of errors was required. Errors progressed from blatant absurdities to subtle substitutions.
Modifications: Paragraphs contained errors both similar and dissimilar to subject's own. (Yudkovitz & Rottersman used errors unrelated to subject).
Sessions: 7 (Yudkovitz & Rottersman: 11 sessions)

* Probe obtained (3 consecutive days of language samples)

*. Marty began spontaneously identifying the errors within paragraphs that were representative of his own. Therefore, Phase III (Interpersonal Scanning) was bypassed with provisions for regression steps if necessary.

IV. Intrapersonal Scanning for Errors
-- Marty listened to recorded samples of his conversational speech with the clinician and signalled the presence of errors. Although he identified specific word(s) when the presence of an error was

cued by the clinician, he lacked spontaneous signalling skills. Therefore, a regression to Phase III was instituted.
Modifications: A categorical identification procedure incorporating Marty's nonsensical utterances was utilized. (Yudkovitz & Rottersman identified one specific error: the topic introduction "one thing",as the target error).
Sessions: 11 (Yudkovitz & Rottersman: 18 sessions)

III. Interpersonal Scanning
-- The clinician taped randomly arranged sentences: some were correct and others contained the subject's errors. Marty signalled each sentence as "correct" or "mistake".
Modifications: 1. Isolated sentences vs. clinician's spontaneous speech. 2. Taped utterances vs. live speech. 3. Categorical identification vs. one specific error.
Sessions: 10 (Yudkovitz & Rottersman: 15 sessions)

IV. Intrapersonal Scanning for Error
A1. Regression -- Marty scanned errors presented in his own voice and containing his own errors at a sentence level. (Sentences were read aloud by Marty, taped, and played back to him). The direction was changed from "correct/mistake" to "sense/nonsense" when sensitivity to the word "mistake" resulted in aberrant behaviors.
Modification: Regression step was added to provide Marty with more opportunity for success.
Sessions: 9

* Probe obtained (3 consecutive days of language samples)

B-2. Marty scanned his own errors in taped conversational speech with the clinician. He continued to lack spontaneous signalling.
Modification: Categorical identification.
Sessions: 4 (Yudkovitz & Rottersman: 9 sessions)

B-1. 2nd Regression -- The clinician stopped the above taped samples after each of the subject's utterances. Marty signalled "sense/nonsense".
Modification: This regression step was added due to continued lack of spontaneous signalling.
Sessions: 12

* Final probe obtained (2 consecutive days of language samples)

An informal transition step from signalling errors on tape to self-monitoring his immediate conversational speech involved an addition to Yudkovitz & Rottersman's program termed "Structured Conversation." Marty looked at pictures and told a story about each. When bizarre or off-topic statements occurred, Marty was cued to identify his error.
Sessions: 9

RESULTS

The program's effects on the subject's spontaneous conversational speech were evaluated through the analysis of the language samples obtained as probes at the four intervals throughout the program. During the baseline period, language samples were recorded and transcribed for 12 consecutive sessions. Three consecutive days of samples were obtained for the following 2 probes, and two consecutive days of samples were obtained at the conclusion of the program. The ranges and means of the five targeted parameters at each probe period were then calculated and compared. A summary of the results follows:

Key: 1. %T?'s = % Total questions/total utterances
2. %I?'s = % Inappropriate questions/ total questions
3. #TS = # Inappropriate topic shifts/half hour session
4. %R = % Rote statements/total statements
5. %P = % Perseverative statements/total statements

Probe Pd.	Parameters									
	1.%T?'s		2.%I?'s		3.#TS		.4.%R		5.%P	
	Range	X	Range	X	Range	X	Range	X	Range	X
Baseline	24-65	43.3	57-100	90.2	7-42	25	0-40	10.7	39-100	78.5
Phase II	22-31	27	55-87	75	10-16	12.7	3-27	11.7	27-57	42
Phase IV	12-26	18	0-72	40.7	5-13	8.3	0-2	1.0	19-73	39
Phase IV (Final)	31-44	37.5	46-67	56.5	8-12	10	0-7	3.5	32-39	35.5

These results indicate improvement of all parameters of Marty's spontaneous interactions at each probe interval, with the exception of the final probe period. At this probe, the percentages of every parameter with the exception of perseverative statements rose slightly above the probe immediately preceding it. However, all five assessment parameters reamined markedly below baseline levels.

The most notable decreases occurred in the percentages of inappropriate questions and perseverative statements. The percentage of Marty's inappropriate questions decreased a total of 33.7% from baseline. However, his percentage of questions decreased only 5.8% from baseline. This indicates that the subject continued to pose numerous questions. However, the nature of his questions was more appropriate and less bizarre. Perseverative statements declined an average of 43% from baseline, and the number of rapid topic shifts decreased an average of 15 topic shifts per half hour session. These findings also indicate positive changes in the appropriateness of Marty's utterances. Finally, the range of rote statements decreased from 0-40 at baseline to 0-7 at the conclusion of the program with decreased means of 10.7% to 3.5%.

Discussion

The results of this case study imply confirmation of the theory that children who exhibit schizophrenic language patterns are deficient

in their ability to auditorily monitor their own output (Yudkovitz & Rottersman, 1973). Given a specific program for increasing auditory monitoring and feedback, Marty's aberrant linguistic patterns decreased. These changes were also subjectively observed by Marty's academic teacher, who stated "Marty doesn't ask me as many silly questions anymore." His residential teachers and other staff members also commented on positive changes.

The changes in Marty's interactions were achieved within 56 half hour sessions over a five month period, compared to the 245 half hour sessions over a 1-1/2 to 2 year period in Yudkovitz & Rottersman's (1973) study. This was accomplished by omitting unnecessary steps and by establishing a set criterion for success and subsequent progression to new phases. Because regression occurred in some parameters following the final phase, the randomly chosen criterion in this study (80% for 3 consecutive sessions) may warrant further examination. Perhaps 3 sessions was too brief a period to accurately reflect the subject's mastery of a phase. A more stringent criterion may be indicated. Regardless, however, Marty's improved communication with others makes it apparent that Yudkovitz & Rottersman's auditory monitoring and feedback approach can be successfully modified to meet the specific needs of individual children.

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APPENDIX A

Sample of Subject's Schizophrenic Utterances

1. "Has Robinhood ever been a puppeteer?"
2. "Do pilgrims have an orchestra symphony classic?"
3. "May I tell you how God created the world? It was dark and then came the three uses of the word 'ant'."
4. "A secret vision echoes a mystery dream."
5. "Can you touch your imagination?"
6. "Does an octopus have fingernails?"
7. "The opposite of number has different skin."
8. "I like chipped beef on my baked potato and do I have nose veins?"
9. "Is the number zero cute?"
10. "Is England a secret?"